

CLAIMS:

1. A facepiece for a breathing apparatus by which  
breathable gas is supplied to a wearer, the facepiece  
comprising a supply valve for delivering gas to the  
5 interior of the facepiece, and an exhaust opening  
closeable by an exhaust valve for allowing the egress of  
gas from the facepiece, wherein the exhaust valve  
comprises a movable diaphragm which, in a first position,  
closes the exhaust opening in the facepiece, the  
10 diaphragm being movable to a second position displaced  
toward the interior of the facepiece relative to the  
first position and still in sealing engagement with the  
exhaust opening, and a third position displaced outwardly  
of the facepiece relative to the first position and in  
15 which the exhaust opening is open to allow the egress of  
gas, the diaphragm being biased towards the second  
position by biasing means, and the diaphragm engaging  
operating means to open the supply valve when in the  
second position.

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2. A facepiece according to claim 1, wherein a sealing  
element cooperates with the diaphragm and the periphery  
of the exhaust opening to seal the diaphragm to the  
exhaust opening while the diaphragm is in its first  
25 position and while it moves between the first and second  
positions.

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9. A facepiece according to claim 8, wherein adjustment means is provided between the operating lever and the diaphragm to adjust the point on the travel of the diaphragm at which contact with the operating lever is

made.

10. A facepiece according to claim 9, wherein the adjustment means comprises a fixed abutment on the diaphragm and a movable abutment mounted on the lever.

11. A facepiece according to claim 9, wherein the adjustment means comprises a fixed abutment on the lever and a movable abutment mounted on the diaphragm.

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12. A facepiece according to any preceding claim, further including means operable to move the diaphragm to its third position.

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13. A facepiece according to any preceding claim, including releasable means operable to retain the diaphragm in its third position.

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14. A facepiece according to claim 13, wherein the releasable means comprises a movable latch element engageable with a detent.

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15. A facepiece according to claim 14, wherein the latch element is mounted on the facepiece and the detent is mounted on the diaphragm.

16. A facepiece according to any preceding claim,

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wherein the diaphragm is a speech transmission diaphragm.

17. A facepiece according to any preceding claim,  
wherein the interior of the facepiece is divided into  
5 upper and lower compartments, the upper compartment  
covering the wearer's eyes and having a transparent sight  
window, and the lower compartment covering the wearer's  
mouth and nasal openings and having the diaphragm mounted  
thereon, the supply valve being situated to deliver  
10 breathable gas to the upper compartment, and non-return  
valves being provided to allow gas to flow from the upper  
to the lower compartment only.

18. A facepiece according to any of claims 1 to 16,  
15 wherein the facepiece covers the wearers nose and mouth  
only.

19. A breathing apparatus to supply breathable gas to  
a wearer, comprising a reservoir of breathable gas at  
20 superambient pressure and a facepiece sealable to the  
wearer to cover the nose and mouth, the facepiece  
comprising a supply valve for delivering to the interior  
of the facepiece, and an exhaust opening closeable by an  
exhaust valve for allowing the egress of gas from the  
25 facepiece, wherein the exhaust valve comprises a movable  
diaphragm which, in a first position, closes the exhaust  
opening in the facepiece, the diaphragm being movable to

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a second position displaced toward the interior of the facepiece relative to the first position and still in sealing engagement with the sealing element, and a third position displaced outwardly of the facepiece relative to the first position and in which the exhaust opening is open to allow egress of gas, the diaphragm being biased towards the second position by biasing means, and the diaphragm engaging operating means to open the supply valve when in the second position.

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20. A breathing apparatus according to claim 19, wherein a sealing element cooperates with the diaphragm and the periphery of the exhaust opening to seal the diaphragm to the exhaust opening while the diaphragm is in its first position and while it moves between the first and second positions.

21. A breathing apparatus according to claim 20, wherein the sealing element is mounted on the facepiece to surround the exhaust opening.

22. A breathing apparatus according to claim 21, wherein the sealing element is mounted on the diaphragm.

23. A breathing apparatus according to claim 19, wherein the diaphragm is pivotally mounted to the facepiece.

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24. A breathing apparatus according to claim 19, wherein the diaphragm is mounted for rectilinear movement relative to the facepiece.

25. A breathing apparatus according to any of claims 19 to 24, wherein adjustment means are provided to adjust the distance between the first and second positions of the diaphragm.

26. A breathing apparatus according to any of claims 19 to 25, wherein the operating means which opens the supply valve is an operating lever.

27. A breathing apparatus according to claim 25, wherein adjustment means is provided between the operating lever and the diaphragm to adjust the point on the travel of the diaphragm at which contact with the operating lever is made.

28. A breathing apparatus according to claim 27, wherein the adjustment means comprises a fixed abutment on the diaphragm and a movable abutment mounted on the lever.

29. A breathing apparatus according to claim 28, wherein the adjustment means comprises a fixed abutment on the lever and a movable abutment mounted on the diaphragm.

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30. A breathing apparatus according to any of claims 19 to 29, wherein the facepiece further includes means operable to move the diaphragm to its third position.

5 31. A breathing apparatus according to claim 30, wherein the facepiece further includes releasable means operable to retain the diaphragm in its third position.

34 32. A breathing apparatus according to claim 31, wherein  
10 the releasable means comprises a movable latch element engageable with a detent.

33. A breathing apparatus according to claim 32, wherein the latch element is mounted on the facepiece and the  
15 detent is mounted on the diaphragm.

34. A breathing apparatus according to claim 33, wherein the diaphragm is a speech transmission diaphragm.

20 35. A breathing apparatus according to claim 34, wherein the interior of the facepiece is divided into upper and lower compartments, the upper compartment covering the wearer's eyes and having a transparent sight window, and the lower compartment covering the wearer's mouth and  
25 nasal openings and having the diaphragm mounted thereon, the supply valve being situated to deliver breathable gas to the upper compartment, and non-return valves being

33. A breathing apparatus according to claim 35, wherein  
5 the facepiece covers the wearer's nose and mouth only.

37. A breathing apparatus according to any of claims 19 to 34, wherein the facepiece forms part of a hood or helmet containing the head of the wearer.

38. A breathing apparatus according to any of claims 19 to 34, wherein the facepiece forms part of a garment partially or totally enclosing the wearer.

39. A hood for a breathing apparatus, incorporating a facepiece according to any of claims 1 to 17.

40. A garment including a facepiece according to any of claims 1 to 18.

41. A demand valve for a facepiece of a breathing apparatus, comprising an inlet duct and an outlet opening, and a valve member movable between open and closed positions to respectively close and open a valve orifice which when open provides fluid communication between the inlet duct and the outlet opening, the demand valve further including a movable cover to close the

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outlet opening to prevent the ingress of contaminants, the cover being moved away from the outlet opening by fluid pressure when the valve member is in the open position.

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42. A demand valve according to claim 41 wherein the movable cover is a resilient flap extending across the outlet opening.

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